

Appl. No. : **09/786,100**
Filed : **May 21, 2001**

REMARKS

Discussion of Rejections Under 35 USC §103(a)

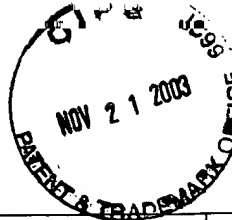
Claims 1 and 3-9 remain pending in the application. The Examiner rejected Claims 1, and 3-9 under 35 USC §103(a) as unpatentable over Nakajima et al., JP 10-010380, in view of Mogami et al., US 5,684,071. As discussed during the interview of November 17, the applicant respectfully contends that there is no motivation to combine the teachings of Nakajima with Mogami, and even if combined, the combination of the references fail to teach each and every element of the claims. Applicant thanks the Examiner for the time taken during the interview, and respectfully requests reconsideration and allowance of the pending claims.

Applicant's Claim 1 recites a fiber cord that comprises a coating layer having a resin component selected from a group including polyester elastomer-series thermoplastic resins. Mogami does not disclose a polyester elastomer-series thermoplastic resin, but instead discloses using PET and PBT thermoplastic polyester resins. As was discussed in the interview with the Examiner, the PET and PBT thermoplastic polyester resins disclosed in Mogami are unsuitable for use as a fiber cord coating because of the hard and brittle nature of the PET and PBT materials relative to the claimed polyester elastomer-series resins.

Mogami describes the PET and PBT resin material as "useful for production of injection moldings." Mogami col. 13 ll. 29-30. Mogami never discloses or suggests use of any resin for optical fiber coatings. As discussed in the interview, Applicant encloses with this response the leaflet from Kaneka and an English translation of the portion illustrating components manufactured from the composition described in Mogami. The resin described in Mogami is very hard at room temperature and is not suitable for a fiber cord layer.

Additional brochures are enclosed summarizing mechanical properties of Lumirror PET and Duranex PBT plastics similar to those described by Mogami.. These properties can be compared to the properties of Hytrel 2751 and 7277 polyester elastomer-series resins summarized in the enclosed sheet, and which are covered by the current claims. A summary of the pertinent properties is provided below.

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	PET or PBT	Polyester Elastomer resin
Tensile modulus	4000Mpa (PET film, Lumirror, #25S10, Toray)	902 Mpa (Hytrel 2751)
		232 Mpa (Hytrel 7277)
Flexural modulus	2550 Mpa (PBT, 'Duranex, 200FP, Polyplastics)	1250 Mpa (Hytrel 2751)
		539 Mpa (Hytrel 7277)

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Thus, it can be seen that the mechanical properties of PET and PBT are not similar to the mechanical properties of the claimed polyester elastomer-series resin and thus cannot be used to produce the claimed fiber cord having a polyester elastomer-series resin coating.

CONCLUSION

Applicant has endeavored to address all of the Examiner's concerns as expressed in the outstanding Office Action. Accordingly, arguments in support of the patentability of the pending claim set are presented above. In light of these remarks, reconsideration and withdrawal of the outstanding rejections is respectfully requested. Applicant submits that the claim limitations discussed above represent only illustrative distinctions. Hence, there may be other patentable features that distinguish the claimed invention from the prior art.

If there are any impediments to allowance of the claims that can be resolved with a telephone call, the Examiner is respectfully invited to call the undersigned. Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 11/19/03

By: 

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Attorney of Record
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株式会社カーネカ

事業紹介 製品一覧 info@kaneka.co.jp

特殊樹脂部門 Specialty Plastics

耐熱性や耐候性、難燃性、弾性など、新しい機能をもった樹脂が、建築分野や自動車、家電、情報機器など、さまざまな分野で新しいテクノロジーを刺激し、暮らしのシーンを塗りかえています。

どんな製品？

MSポリマー

弾性シーリング材のベースとなる液状樹脂。変成シリコン系シーリング材の分野でNo.1のシェアを誇ります。



80高分子学会賞

エポオン

97年に世界で初めて工業化に成功したポリイソブチレン系液状樹脂。高性能シーリング材ベースポリマーとして広範な用途が期待されています。

97日経優秀製品・サービス賞優秀賞



エポオンを使ったシーリング材 (施工風景)

カネエースB

透明性と耐衝撃性の両立を世界で初めて実現した塩化ビニル強化用樹脂。建材などの分野にも用途が広

用途例・活用事例

特記事項

耐候性・耐久性・弾性があり、施工性にも優れる。



シーリング材による施工風景
東京都庁 (MSポリマーの採用例)

湿気を通しにくく熱に強い。しかも、ガラスと金属・石材の間もシーリングできる。

塩ビの透明性を生かしながら耐衝撃性を大幅に向上。世界シェアの約50%を占める。

Leaflet

がいくつかあります。

1972高分子学会賞



硬化のメカニズム



文房具などでよく使われるプラスチック

ハイパーライト

射出成形用エンジニアリングプラスチックとしての実用性向上を実現した改質PET樹脂。



電子機器・OA機器・自動車部品

結晶化が困難だったPET樹脂の改質技術確立。

← Mogami's
invention (U.S. Patent
No. 5,684,071)

ゼムラック
(アクリルシリコン系ポリマー)

塗料・コーティング剤

サイリル
(粘・接着剤ベースポリマー)

粘・接着剤

テルアロイ
(塩ビ耐熱性改良用樹脂)

フロピーディスクジャケット、カード類、耐熱シート、自動車部品など

サンデュレン
(耐候性MMA系アクリル)

屋根材や外装壁材用の
ラミネートフィルム

※エポック、カネエースB、ハイパーライト、ゼムラック、サイリル、テルアロイ、サンチュレンは、
罐頭化学工業株式会社の登録商標です。

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KANEKA:Fields

Extracted English translation

がりつつあります。

1972高分子学会賞



錠剤のプレススルーパッケージ



文房具などでよく使われるプラスチックパッケージ

ハイパーライト® Hyperlight® (trade name)

射出成形用エンジニアリングプラスチックとしての実用性向上を実現した改質PET樹脂。

Modified PET resin by which improvements in practice have been realized as an injection-molded engineering plastic.



電子機器・OA機器・自動車部品

結晶化が困難だったPET樹脂の改質技術を確立。

We have established modification techniques for PET resin which had been hardly crystallized.

Electronic devices, office automation devices, automobile parts.

ゼムラック
(アクリルシリコン系ポリマー)

塗料・コーティング剤

サイリル
(粘・接着剤ベースポリマー)

粘・接着剤

テルアロイ
(塩ビ耐熱性改良用樹脂)

フロッピーディスク・ジャケット、カード類、耐熱シート、自動車部品など

サンデュレン
(耐候性MMA系フィルム)

屋根材や外装壁材用のラミネートフィルム

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PRODUCTS

PRODUCTS

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Performance**

Applications

**For general industrial
applications**

Electrical

Graphics

Display material

Lumirror Polyester Film

Properties/
performance

Applications

PET

■ Properties of Lumirror*

Table 1 lists the standard values for various properties of Lumirror*, while Table 2 shows its chemical resistance. The sample for measurement is 0.023mm(#23) thick.

Table 1: Characteristics of Lumirror*

Table 2: Chemical resistance of Lumirror* - strength retention rate (%) at 30°C

Table 1: Properties of Lumirror*

Casting/Release

Cards & Graphic arts
base

Optical

Metallic yarn

- For packaging materials

- For magnetic materials

- For capacitor applications

Property	Item	Typical Values	Measurement Standard
Mechanical properties	Tensile strength	25kg/mm ²	ASTM D882
	Ultimate elongation	130%	ASTM D882
	Tensile modulus	400kg/mm ²	ASTM D882
	Initial tear strength	22kg/20mm	ASTM D627
	Bursting strength	6kg/cm ²	ASTM D774
	Impact strength	1000kg · cm/mm	-
	Tear strength propagation	20g	ASTM D1938
	Flex crack resistance	>120,000times	ASTM D2176
Electrical properties	Dielectric strength	310KV/mm	ASTM D149
	Dielectric constant	1KHz	3.3
		1MHz	3.2
	Dissipation factor	1KHz	0.2%
		1MHz	1.0%
	Volume resistivity	10 ¹⁴ Ω · cm	ASTM D257
Physical properties	Surface resistivity	10 ¹⁰ Ω	ASTM D257
	Density	1.40g/cm ³	ASTM D1505
	Melting point	266°C	JIS K7121 (DSC method)
	Applicable temperature range (for reference)	-70-+150°C	-
	Moisture absorption	0.4%	Federal Test Method Std No. 406
	Hygroscopic expansion coefficient	1.2 × 10 ⁻³ cm/cm/%RH	-
	Thermal expansion coefficient	1.5 × 10 ⁻³ cm/cm/°C	ASTM D696
	Thermal shrinkage coefficient	1.3%(150°C, 30min)	ASTM D1204
	Water vapor transmission rate	6.9g/m ² ·24hr/0.1mm	ASTM E96
	Oxygen transmission rate	19cc(NTP)/m ² · 24hr/0.1mm/atm	ASTM D1434
	Refractive index	1.66	ASTM D542
	Light transmission rate	85%	ASTM D1003

**Table 2: Chemical Resistance of Lumirror*
(Strength retention ratio % at 30°C)**

Chemical	Immersion days	5 days	10 days	20 days	Result
Glacial acetic acid		91	90	91	Excellent
10% chloric acid		100	94	92	Excellent
60% sulfuric acid		100	91	99	Excellent
20% sulfuric acid		92	92	90	Excellent
Acetone		97	94	98	Excellent
Xylene		94	93	93	Excellent
Benzene		81	90	91	Excellent
35% chloric acid		97	85	84	Good
35% nitric acid		100	92	87	Good
10% sodium hydroxide		74	47	0	Poor
26% aqueous ammonia		0	0	0	Poor
12% aqueous ammonia		94	57	0	Poor

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<http://www.toray.co.jp/e/films/products/lumirror/index.html>

2002.01.001.WEDX-39

DURANEX® Grade Series

PBT(Polybutylene terephthalate)

DURANEX®

200FP

300FP

500FP

700FP

800FP

(Unfilled PBT for Film
Extrusion)

Table 1-1 General physical properties of DURANEX® FP series (ASTM)

Item	Unit	Testing method	Unfilled PBT for film, Extrusion					
			HB					
			200FP Super high flow	300FP High flow	500FP Cast sheet Extrusion lamination Duplex extrusion	700FP Extrusion lamination	800FP Inflation	800JP Lower melting point
Specific gravity	g/cm ³	D 792	1.31	—	1.31	1.31	1.31	1.30
Tensile strength	MPa	D 638	55	—	51	50	49	49
Tensile elongation	%	D 638	15	—	80	>200	>200	>200
Flexural strength	MPa	D 790	—	—	—	—	—	78
Flexural modulus	MPa	D 790	2,550	—	2,550	2,550	2,550	2,450
Izod impact strength (with notch)	Notch side	J/m	D 256	16	—	27	39	49
	Reversed notch	J/m	D 256	274	—	1,539	Not destroyed	Not destroyed
Deflection temperature under load (1.82MPa)	°C	D 648	115	—	86	71	68	55
Coefficient of linear thermal expansion (Short-time test: 2mm)	×10 ⁻⁶ /°C	—	—	—	—	—	—	—
Dielectric breakdown strength (Short-time test: 2mm)	MV/m	D 149	—	—	—	—	—	—
Volume resistivity (3mm)	Ω • cm	D257	—	—	—	—	—	—
Surface resistivity	Ω	D257	—	—	—	—	—	—
Arc resistance	s	D495	—	—	—	—	—	—
Tracking resistance	V	(IEC)	—	—	—	—	—	—
Flammability (UL94)	—	(UL94)	HB	HB	HB	HB	HB	HB

- All figures in the table are the typical values of the material and not the minimum values of the material specifications.
- For qualified values of UL (Underwriters Laboratories Inc.) refer to the yellow card (File No.E213445) issued by UL

Polyplastics



ISO 9001:2000
Certified
JQA-4263



ISO 14001 Certified
JQA-EM237 Research & Development Div
JQA-EM2414 P&D Plant

* This registered mark does not guarantee quality of our products or services.

- * WinTech Polymer Ltd. is a member of the Polyplastics Group, while the "DURANEX" PBT resin manufactured and sold by that firm is marketed by Polyplastics affiliated companies in the regions listed below.
- * "DURANEX" is a registered trademark of Polyplastics Co., Ltd.

WinTech Polymer Ltd.

Kasumigaseki Bldg. (Flr. 6th)
2-5, Kasumigaseki 3-chome, Chiyoda-ku, Tokyo, 100-6006 Japan
Phone: 81-3-3593-2411 Fax: 81-3-3580-0629

POLYPLASTICS CO., LTD.

Kasumigaseki Bldg. (Flr. 6th)
2-5, Kasumigaseki 3-chome, Chiyoda-ku, Tokyo, 100-6006 Japan
Phone: 81-3-3593-2411 Fax: 81-3-3593-2455

Affiliates

Polyplastics Asia Pacific Sdn. Bhd. (Kuala Lumpur)
Polyplastics Asia Pacific Singapore Pte. Ltd. (Singapore)
Polyplastics China Limited (Hong Kong)
Polyplastics Marketing (T) Ltd. (Bangkok)
Polyplastics (Shanghai) Ltd. (Shanghai)
Polyplastics Trading (Shanghai) Ltd. (Shanghai)
Polyplastics Taiwan Co., Ltd. (Taipei)

- *1 Fundamental grade of Hytrel(R)
- *2 Tensile modulus
- *3 Flexural modulus
- *4 Injection
- *5 Extrusion

*1 ASTM
*2 JIS
*3 試験片は引張片
*4 試験片は圧縮片
*5 試験片は2mm厚さ方向測定用

引張試験片2mm厚さ方向測定用

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